

Dividend taxes and income shifting^{*}

Annette Alstadsæter[†] and Martin Jacob[‡]

This Version: April 2015

Forthcoming in *Scandinavian Journal of Economics*

ABSTRACT

This paper analyzes whether a dividend tax cut for owner–managers of closely held corporations encourages income shifting, income generation, or both. We use rich Swedish administrative micro data from 2000 to 2011 comprising detailed firm- and individual-level information. We find robust evidence of extensive income shifting across tax bases in response to the 2006 Swedish dividend tax cut. Owner–managers of closely held corporations reclassify earned income as dividend income but do not increase total income. The response is more pronounced for owner–managers with tax incentives and with easier access to income shifting through a high ownership share.

Keywords: Income shifting, income generation, dividend taxes, closely held corporations, owner–managers

JEL classification: H21, H25, H3

^{*} We thank two anonymous referees Martin Fochmann, Peter Fredriksson, Jochen Hundsdoerfer, Martin Ruf, Altin Vejsiu, and seminar participants at the Free University of Berlin and the 2012 Forum for Tax Policy Research in Norway for comments and suggestions. Support from the Research Council of Norway grant 217139/H20 is gratefully acknowledged. Martin Jacob additionally gratefully acknowledges financial support from the Fritz Thyssen Stiftung.

[†] Institute of Health and Society, University of Oslo, PO Box 1089 Blindern, NO-0317 Oslo, Norway; phone +47 23075303; fax +47 22845091; e-mail annette.alstadsater@medisin.uio.no.

[‡] WHU – Otto Beisheim School of Management, Burgplatz 2, 56179 Vallendar, Germany; phone +49 261-6509-350; fax +49 261-6509-359; e-mail martin.jacob@whu.edu..

I. Introduction

Governments often use tax incentives to stimulate entrepreneurship and economic growth (e.g., Lee and Gordon 2005). While some reforms target specific industries or large multinational companies, other reforms target small and medium-sized businesses. Cutting dividend taxes for small businesses can be seen as a way to increase investment, thereby stimulating activity in firms and the economy. A lower dividend tax rate reduces the required rate of return on investments financed by new share issues (Harberger, 1962, 1966; Feldstein, 1970; Sørensen, 1995). If dividend tax cuts reduce the cost of capital, financially constrained firms may increase investments following a dividend tax cut (Becker, Jacob, and Jacob, 2013; Alstadsæter, Jacob, and Michaely, 2015).¹ However, in addition to these intended investment effects, beneficial tax rules for particular groups create incentives and opportunities for income shifting (Stiglitz, 1985; Slemrod, 1995; Gordon and Slemrod, 2000). Income shifting is the process of transferring income across time, income categories, and tax brackets to reduce total tax payments. This is legal tax avoidance and does not involve immediate real effects; it is a purely tax-motivated relabeling of existing income. Very little is known empirically about the income shifting of individuals. Pirttilä and Selin (2011) provide evidence of income shifting around the introduction of the dual income tax system in Finland in 1993, which reduced the marginal tax rates on capital income for some taxpayers. The authors find little or no response from ordinary wage earners, but self-employed individuals seem to have increased reported capital income.

We examine the income shifting behavior of individuals and exploit a 2006 Swedish tax reform that reduced the dividend tax rate for owner-managers in closely held corporations (CHCs) by 10 percentage points, while labor and corporate income tax rates

¹ Further, the openness of the economy drives the effect of a dividend tax cut. A decrease in the dividend tax rate for smaller corporations in an open economy can decrease the cost of capital if these firms are owned by domestic investors (Apel and Södersten, 1999; Jacob and Södersten, 2012; Lindhe and Södersten, 2012).

remained constant. As a result, incentives for owner–managers in CHCs to relabel labor income as dividend income increased. We investigate whether a dividend tax cut encourages owner–managers in CHCs to participate in income shifting, income generation, or both.² Using rich Swedish administrative panel data on all CHCs, partnerships, self-employed businesses, and their owner–managers, we are able to observe reported income across several tax bases from 2001 to 2011. Our data comprise 2.7 million observations, of which 44% are owner–managers in CHCs and the remaining 56% are the owners of partnerships or self-employed businesses. We use a difference-in-differences (DD) estimator around the 2006 dividend tax reduction and compare the income and income composition of owner–managers of CHCs (affected by the tax reform) to the income of owners of unincorporated businesses (unaffected by the tax reform).

We find robust evidence of income shifting behavior. The owner–managers of CHCs have substituted earned income with dividend income since the reform. On average, CHC owners shifted about 6%, or about SEK 22,000, of their total gross income from labor income to dividend income. We find no evidence that the total gross income of CHC owners increased relative to that of owners of unincorporated businesses. This indicates that CHC owners did not generate additional income in response to the dividend tax cut. Instead, they shifted income across tax bases. In terms of tax savings, an individual in the top tax bracket can reduce the marginal tax burden from 67% on earned income to 42.4% on dividend income. Using our estimated coefficient for income shifting among all CHC owners, this implies that, on average, a highly taxed CHC owner experiences tax savings equivalent to 1.5% of total pre-tax income, or about SEK 5,500. Taken together, this adds up to substantial

² This isolated dividend tax change in dividend income is advantageous since our results on income shifting behavior in this context are not affected by concerns about the macroeconomic effects that accompany large tax reforms, such as around the introduction of the dual income tax. See Agell, Englund, and Södersten (1996) on the 1991 introduction of the Swedish dual income tax system. Our paper also relates to theoretical papers on the dual income tax, such as those of Fjærli and Lund (2001), Lindhe, Södersten, and Öberg (2002, 2004), and Sørensen (2005).

tax revenue losses. In our robustness tests, we obtain very similar economic magnitudes and tax savings when we allow the coefficients of control variables and county fixed effects to vary across years to account for shocks across counties and groups over time.

We further examine heterogeneity in income shifting across CHC owners and examine the role of tax incentives. Our empirical results suggest that income shifting behavior is more pronounced for high-income CHC owners who enjoy larger tax benefits from converting labor income into dividend income than lower-income CHC owners. Finally, we test whether access to income shifting affects the magnitude of the income that is relabeled. We find that individuals with a high ownership share and thus stronger influence on dividend payout policies and wage structure (Jacob, Michaely, and Alstadsæter, 2015) shift more income across bases than owners with minority interests. In other words, CHC owners with minority shareholdings are less able to shape the income shifting process according to their preferences.

One potential concern about this study is external validity, since income shifting incentives apply to only a small fraction of individuals. However, these individuals, namely, CHC owners, are an important fraction of the entire economy. CHC owners, or about 3% of the population, generate about 7.6% of the total income and contribute about 8.5% to income tax revenue (2007 values). CHCs thus represent an important yet often overlooked part of the economy, the potential revenues losses are substantial and, consequently, CHC owners' income shifting is of great relevance to policy makers and the economy.

This paper is part of a broader research program on the effects of dividend tax policy on participation in tax avoidance and tax evasion (Alstadsæter and Jacob, 2013, 2015) and on the investment and payout behavior of unlisted firms (Alstadsæter, Jacob, and Michaely, 2015; Jacob, Michaely, and Alstadsæter, 2015). Alstadsæter and Jacob (2015) analyze the importance of access, awareness, and incentives in establishing specific tax-sheltering firms

of individuals. Alstadsæter, Jacob, and Michaely (2015) show that the 2006 dividend tax cut had heterogeneous investment responses across cash-rich and cash-constrained firms, but no aggregate investment effect. In addition to these papers, our paper provides empirical evidence of the magnitude of income shifting and documents heterogeneity in income shifting across owner–managers. It shows that there is no aggregate effect on the pre-tax total gross income of business owners, but that after-tax income increases because of the tax minimizing income shifting.

This paper also contributes to the literature on responses to taxation. All responses to taxes are potentially marginal efficiency losses (Saez, Slemrod, and Giertz, 2012). Income shifting activity across tax bases reduces tax revenue, increases inequality, and distorts aggregate statistics (Slemrod, 1995; Gordon and Slemrod, 2000). Our results imply that the comprehensive evaluation of any tax reform needs to consider all directly and indirectly affected tax bases. Myopic focus on a single tax base when evaluating a tax reform can lead to misleading conclusions, for instance, if labor supply elasticities are measured only by labor income without accounting for high-income individuals’ potential to relabel wage income as capital income. Our results also point toward a potential policy trade-off. A reduction in dividend taxes leads to income shifting. At the same time, a reduction in the dividend tax rate can improve the allocation of investments as funds are shifted from cash-rich to cash-poor firms. Hence, policy makers face a trade-off between increasing income shifting opportunities and raising efficiency through the improved allocation of investments.

II. The Swedish tax code, the 2006 tax reform, and incentive changes

Sweden has a dual income tax with a progressive tax on earned income and a proportional tax on capital income. Progressivity in the tax on earned income stems from a basic flat municipality tax and two additional central government-level taxes that apply at different thresholds. Earned income comprises labor income and profits from unincorporated

businesses. Wages are additionally subject to social security contributions at the firm level. Up to a certain threshold, these contributions generate benefits to the employee in the form of health insurance, unemployment benefits, and pension benefits. However, above this threshold, these contributions cease to generate additional benefits and become a pure tax. The resulting combined marginal tax burden on labor income ranges from 31.6% to 67.2% (2005 values). Capital income is taxed at the proportional tax rate of 30% at the individual level.³ Since dividends are also taxed at the corporate level, the combined tax burden on dividends amounted to 49.6% until 2005. For high-income earners, there was thus a 17.6 percentage point difference between the top marginal tax rates on wage income and dividend income. This represents a strong incentive to reclassify wage income as dividend income to reduce total tax payments.

The so-called 3:12 rules that apply to active owners of CHCs limit this type of income shifting.⁴ According to Swedish tax law, a corporation is closely held if four or fewer active shareholders own at least 50% of the shares and a shareholder is active if contributing considerably to the firm's profit generation. We denote active shareholders as owner-managers. Dividends to owner-managers of CHCs that are within an imputed dividend allowance are taxed as dividend income. The imputed dividend allowance is a function of firm-level equity and wage costs and is distributed to each owner-manager according to ownership share. Dividends exceeding the imputed dividend allowance are taxed as earned income.

The 3:12 rules were changed in 2006. According to government policy documents, the objectives were to foster entrepreneurship, investment, and job creation.⁵ The tax rate on dividends within the dividend allowance was lowered from 30% to 20%. In addition, an

³ Prior to 2006, shareholders were allowed a small tax-exempt dividend. The tax-exempt share of dividends was calculated as 0.7 times the interest rate on government bonds, which varied between 4% and 5% from 2001 to 2005. If not utilized, these allowances for tax-exempt dividends could be carried forward.

⁴ See Alstadsæter and Jacob (2012), Chapter 3 and Appendix I, for a detailed description of the 3:12 rules.

⁵ See Edin, Hansson, and Lodin (2005) and Government Bills 2004/05:1, 2005/06:40, and 2006/07:1.

alternative and optional fixed dividend allowance per firm, independent of employment and assets, was introduced, the so-called simplification rule. The 2006 reform also increased the dividend allowance for most owner–managers of CHCs, further strengthening the incentives for reclassifying earned income as dividend income. An increased dividend allowance also strengthens opportunities for income shifting from earned income to dividend income. Table 1 provides an overview of the marginal tax rates for from 2000 to 2011.

[Insert Table 1 about here]

A possible concern for our empirical analysis is that the size of dividend allowances could be positively correlated with the owner–manager’s income (and hence also with his tax incentives for income shifting). However, there is only a low correlation (correlation coefficient of 0.07) between the owner–manager’s total gross income and the size of the owner’s dividend allowance in our sample. Further, the change in the dividend allowance around 2006 is only marginally correlated with total income, with a correlation coefficient of 0.009. There are two reasons for this: 1) The dividend allowance is calculated at the firm level as a function of equity in the firm and wage costs and then distributed to individual owner–managers according to ownership share. 2) From 2006 onward, the optional and fixed dividend allowances under the simplification rule are used by about 80% of CHC owners. Another observation is that the dividend allowances do not appear to be binding for the vast majority of owner–managers. Only 3.6 % of CHC owners receive dividends taxed as earned income.

In contrast to corporations, unincorporated businesses have a different tax treatment. Importantly, their tax treatment has not been affected by the reform. Business income from self-employed businesses and partnerships are in principle passed through to the owner.⁶ Within an imputed return to assets, business income is taxed as capital income at the owner

⁶ A partnership (*Handelsbolag*) is an unlimited liability firm operated by two or more owners. The owners can be both firms and individuals and are jointly liable for the partnership's debt and obligations.

level at a constant tax rate of 30%. Remaining business income is taxed as earned income at the individual's marginal tax rate on earned income.⁷

Overall, the 2006 reform increased the incentives and opportunities to relabel earned income as dividend income for owner-managers in CHCs, but did not change this incentive for the owners of partnerships and self-employed businesses.⁸

III. Empirical strategy and data description

Our identification of income shifting effects is based on the increased incentive for CHC owner-managers to relabel labor income as dividend income. The treatment group comprises individuals who were owner-managers of CHCs during all three pre-reform years 2003–2005. This condition ensures that the decision to establish a CHC or to remain a CHC was not affected by the 2006 tax reform. Put differently, the treatment is not a function of the reform. The control group consists of a sample of business owners who either participated in a partnership or were self-employed during 2003–2005. We thus compare business owners with access to income shifting (CHC owners, or the treatment group) to business owners with limited income shifting opportunities (owners of unincorporated businesses, or the control group).

Since we base assignment to the treatment and control groups on the 2003–2005 status, owners of partnerships could change their organizational form to a CHC after the reform. We still assign these to the control group, since these individuals were partnership owners prior to the reform. The opportunity to change organizational form works against finding evidence of income shifting since some members of the control group could get access to treatment by changing organization form. In this case, our estimates are lower-bound estimates. However, only very few partnership owners and self-employed (between

⁷ Some exceptions exist. See Alstadsæter, Jacob, Vejsiu (2014), pages 78–81, for a detailed description of the characteristics of the various organizational forms and tax rules.

⁸ In addition, self-employed businesses and partnerships have no minimum required amount of equity and are cheaper to operate, since, for example, there is no mandatory audit of financial accounts.

4% and 7% during 2006–2011) actually changed their organizational form to a CHC. Also exiting the treatment group may be a concern, but only about 0.2% of CHC owners change their organizational form to self-employed or partnership. Hence, the true effects should not be much higher than our lower-bound estimates.

We use the Firm Register and Individual Database provided by Statistics Sweden. This data set is a combination of two main data sources: corporate tax statements and income tax statements. The first data set comprises a full sample of all corporations, partnerships, and self-employed businesses in Sweden from 2000 to 2011. The tax returns include information on tax balance sheet items and the profit and loss statement. The second and main data source for our empirical analysis is a panel data set of the income tax returns of the Swedish population. Importantly, we are able to link firm information on business profits, dividends, and owner–wages to the respective owners.⁹

We exclude from our sample observations missing information on demographics such as age, gender, or marital status. We also exclude extreme observations outside the first and 99th percentiles of the income distribution to prevent extreme values and outliers from distorting and losing precision in our estimates. Further, we include only observations for which the individual’s age is between 18 and 70. Finally, we restrict the analysis to individuals who were business owners in the three years before and two years after the tax reform, that is, from 2003 to 2007. Our final data set consists of 232,228 business owners and 2,668,461 observations from 2001 to 2011. A total of 44% of the observations comprise CHC owners and 56% comprise the self-employed and owners of partnerships.

As our dependent variables, we use total gross taxable income (*Total Gross Income*), defined as an individual's gross total income before tax payments. Total gross income

⁹ We link the firm panel and individual panel data through the K10 forms (for CHCs), N3A forms (for partnerships), or a unique identifier (for the self-employed). We identify CHCs using the link from the corporate tax panel to the individual panel via the K10 form. A link via the N3A data between firm and individual data identifies partnership owners. Figure A1 in the Online Appendix illustrates the data structure and the links between the various data sources.

comprises earned income, capital income, dividend income, and tax-exempt income elements, for example, tax-exempt dividends from CHCs. Further, we use earned income and dividends, where *Earned income* is defined as the sum of (pre-tax) labor income and (pre-tax) income from self-employment and partnerships. Labor income comprises earnings and excludes taxable benefits such as unemployment insurance and pension income. Dividend income is the sum of dividends from listed corporations, unlisted widely held corporations, and CHCs. As measures of income composition, we use the percentage of income derived from earned income (*% Earned Income*) and the percentage of income received as dividends (*% Dividend Income*). All variables are defined in Table A.I in the Appendix. Descriptive statistics are presented in Table 2.

[Insert Table 2 about here]

IV. Income shifting or income generation: Graphical evidence

As discussed above, the 2006 tax reform increased both the incentive and access for owner-managers in CHCs to reclassify wage income as lower-taxed dividend income. The simplest way to find indications of income shifting is to track total gross income and income composition over time. Figure 1 plots nominal total gross income of the treatment and control groups from 2001 to 2011, with the base year 2001. That is, we scale by total gross income in fiscal year 2001. The average total gross income of CHC owner-managers increases steadily over the sample period (black line). However, the income of owners of unincorporated businesses increases similarly (gray line). This indicates that the treatment and control groups follow a common trend with respect to the development of total gross income. Put differently, growth in total gross income is similar across groups and CHC owners do not appear to generate additional income relative to other business owners.

[Insert Figure 1 about here]

We next examine income composition to identify income shifting behavior. Figure 2 presents the difference in the percentages of total gross income derived as dividend income (black line) and as earned income (gray line) between the treatment group—CHC owners—and our control group—the owners of partnerships and the self-employed. The difference is measured in percentage points. The figure indicates increased income shifting among CHC owners in response to reduced dividend taxes. Prior to the reform, CHC owner–managers derived around two percentage points more of their income as dividends relative to other business owners. There was an immediate response to the tax changes in 2006 and after 2007 this difference appeared to stabilize at a new, longer-term level of just below 10 percentage points. The increase in the percentage of total gross income derived as dividends can be attributed to the optional fixed dividend allowance. Between 2006 and 2011, the annual fixed dividend allowance per firm under the simplification rule increased from SEK 64,950 to 127,750. This rule is used by 80% of CHC owners.

Correspondingly, there is a sharp reduction in the share of total income taxed as earned income among CHC owners since 2006 relative to other business owners. We obtain a very similar pattern when we plot year–treatment interactions from our main DD model with covariates and fixed effects below instead of unconditional differences (see Figure 3). Figure 2 shows that the increased income shifting behavior started immediately after the reform. In other words, there was a short-term response around the introduction of the reform. This is also supported by Figure 3. Further, it appears as if there already is a differential trend prior to the reform (see Figure 2). In a robustness analysis, we therefore examine whether our conclusions are affected by allowing for differential trends for the treatment and the control group.

[Insert Figure 2 about here]

[Insert Figure 3 about here]

V. Income shifting or income generation: DD estimates

Baseline results

From the graphical analysis, we conclude that total gross incomes of CHC owners and business owners of unincorporated businesses follow a common trend over the whole period. CHC owners appear to generate a larger fraction of their income in the form of dividends that substitute for earned income as of 2006. We next analyze income development and income composition for the treatment and control groups in more detail. We provide DD estimates of the effect of the 2006 tax cut on total income and income composition. Since our aggregate observations can be driven by heterogeneity across individuals, we need to control for individual socioeconomic factors. We thus specify the regression model as

$$Income_{i,t} = \alpha_1 + \beta \times Treatment_i \times Post_t + \delta\theta_{i,t} + \alpha_i + \alpha_c + \alpha_t + \varepsilon_{j,t} \quad (1)$$

where $Income_{i,t}$ represents our dependent variables, estimated separately. We use three dependent variables:

- Total pre-tax income (*Total Gross Income*),
- The percentage of income derived as earned income (*% Earned Income*),
- The percentage of income derived as dividend income (*% Dividend Income*).

All of these variables are measured for individual i in year t . Total gross income is included as natural logarithm. We include tax-exempt dividends that stem from pre-2005 rules to total gross income and to capital income to assess on owner's total income. We include the indicator variable $Treatment$, which is equal to one if a taxpayer is a CHC owner during 2003–2005. The variable $Post$ is a dummy variable that equals one for the years 2006–2011. Our variable of interest is the DD coefficient (β). In the presence of income shifting,

we expect β to be negative for *% Earned Income* and positive for *% Dividend Income*. A positive β estimate for *Total Gross Income* would be an indication of income generation.

The vector $\theta_{i,t}$ contains time-varying socioeconomic variables for age, marital status, education (with dummies for tertiary education in business, information technology, law, or medicine), and profession (with dummies for being a consultant, an accountant, or a public employee). We include individual fixed effects (α_i), county of residence fixed effects (α_c), and year fixed effects (α_t). Since we include year fixed effects, the effect of the reform (*Post*) is not identified and thus not included in the regression. The effect of *Treatment* is not identified due to the inclusion of individual fixed effects. To address concerns that potential group-specific trends reduce our standard errors (e.g., Moulton, 1990), we use robust standard errors clustered at the group (CHCs, partnerships, and the self-employed) observed over 12 years. This results in 36 clusters.

One potential concern about this approach relates to differences in individual characteristics between business owners in the control and treatment groups. We include individual fixed effects to ensure that the time-invariant observed and unobserved characteristics of individuals do not bias the DD estimate. In other words, individual fixed effects are similar to the application of a matching DD approach to time-invariant observed and unobserved characteristics.¹⁰

Table 3 presents the regression results from estimating Equation (1) with and without fixed effects and covariates.¹¹ The results are in line with the notion of income shifting. The

¹⁰ As a robustness test of our baseline DD model (Heckman et al., 1998), we additionally use a matching DD estimator. We first use one-to-one matching without replacement and match on labor income distribution deciles, deciles of capital income distribution, demographic characteristics, and county fixed effects. The matching is performed on pre-reform characteristics for the years 2003–2005. In Table A.II in the Appendix, we ~~the~~ present the results of the matching DD. The results for % Earned Income and % Dividend Income are very similar to our DD estimation with fixed effects.

¹¹ Since some of the covariates might be endogenous to the reform, for example, accountant status, we also run Equation (1) without covariates but with fixed effects. The resulting coefficients for our three independent variables *Total Gross Income*, *% Earned Income*, and *% Dividend Income* are very similar to the results in Table 3 (-0.006, -0.059, and 0.068, respectively). The standard errors for these three coefficients are 0.005, 0.004, and 0.004, respectively.).

unconditional DD estimate for total gross income suggests that CHC owners did not generate additional income relative to the business owners of unincorporated businesses. When including fixed effects and individual characteristics (Table 3, Column 2), the DD estimate is still negative and again statistically insignificant. It thus appears as if there is no systematic change in the total gross income of the owner–managers of CHCs compared to that of unincorporated business owners.

Instead, our results support income shifting behavior. The results in Columns (3) and (4) of Table 4 show that earned income decreased by 6.0% of total income from the pre-reform period 2001–2005 to the post-reform period 2006–2011. At the same time, the ratio of dividend income to total gross income increased by 6.8 percentage points (Table 3, Columns 5 and 6). Translated into real values, this implies that earned income decreased by SEK 22,068 and dividend income increased by SEK 25,010.¹² We can translate these coefficient estimates into actual tax savings. An individual in the top tax bracket can reduce the tax burden from 67% on earned income to 42.4% on dividend income and experiences tax savings of 1.5% of total gross income, or about SEK 5,500.¹³ Since the total gross income of CHC owners did not increase relative to that of the owners of unincorporated businesses, the results indicate that the owner–managers of CHCs relabeled earned income as dividend income in response to the 2006 reform to reduce total tax payments. In sum, the observed behavior reflects income shifting across the tax bases of CHC owners in response to a dividend tax cut.

[Insert Table 3 about here]

¹² Both values are obtained by multiplying the coefficient estimate with the sample mean of total gross income, SEK 367,798.

¹³ An individual subject to the first level of the central government tax can reduce the tax burden from 51% on earned income to 42.4% on dividend income and experiences tax savings of 0.5% of total gross income, or about SEK 1,900. The tax savings are calculated as the tax rate difference times the change in the earned income of 6% of the total gross income, as reported in Table 3. The 1.5% (0.5%) of the total gross pre-tax income is equivalent to about SEK 5,500 (SEK 1,900).

One potential concern about our estimates is that there might be group-specific time shocks. The coefficients of county fixed effects as well as of the control variables are the same for all years. In other words, our DD model, for example, does not allow for county-specific trends. To address this concern, we test two additional specifications. First, we allow for fully flexible shocks by including the interactions of county fixed effects with year fixed effects, as well as the interactions of all the baseline covariates with year fixed effects. Columns (1), (3), and (5) of Table 4 present the DD coefficient from this *fully interacted* model. The DD coefficient in Column (1) with *Total Gross Income* is still insignificant. Importantly, we obtain very similar coefficients for *% Earned Income* and *% Dividend Income* as in our baseline regression when allowing for flexible county-specific shocks and shocks in covariates.

Second, we account for a potential presence of group-specific trends. Even though Figure 3 suggests that pre-reform differences are statistically not different from each other, we add a trend variable and an interaction of this trend variable and the treatment dummy, using the baseline model. Columns (2), (4), and (6) of Table 4 present the DD coefficient from these regressions. We again find that the effect of *Total Gross Income* is insignificant. The main DD results for *% Earned Income* and *% Dividend Income* are still statistically significant (*t*-statistics between 15 and 17). ~~The fact that the magnitude of the effect decreases can be explained by the increase in the dividend allowance between 2006 and 2011. This increase is then picked up the interaction of the treatment dummy and the trend variable.~~ In sum, both tests support our main finding that a dividend tax reduction leads to increased income shifting behavior and that our results are not driven by different time trends across counties. Still, concerns may remain that our results are driven by group-specific trends. To address such concerns, we exploit differences within the treatment group in Sections 5.2 and 5.3 to demonstrate the effect of the 2006 reform on income shifting.

[Insert Table 4 about here]

Effect of tax incentives in income shifting

After having established the result that income shifting exists across CHC owners, we next focus on heterogeneity in response to the 2006 tax reform within the group of CHC owners. This test additionally addresses any remaining concerns that our DD estimates are biased by different trends of the control group—owners of unincorporated businesses—vis-à-vis the treatment group—CHC owners. To be more precise, we test for differences in response to the tax reform within the treatment group and exploit differences in the tax incentives across CHC owners. The 2006 changes in the 3:12 rules were most beneficial for individuals subject to the central government level tax of 20 percentage points on earned income. The effective tax burden on dividends of 42.4% was then below the income tax burden on labor income of at least 51%.

This within-CHC owner analysis also helps isolate the tax incentive effect. As described in Section 2, the 2006 reform both reduced the tax rate on dividends to CHC owner-managers (strengthened incentives for income shifting) and increased the size of the imputed dividend allowance for most CHC owners (strengthened opportunities for income shifting). These two changes work in the same direction; that is, both strengthen the incentives for income shifting. Since there is a very low correlation between the total gross income of owner-managers and the change in the dividend allowance around the reform, the within-CHC owner comparison of high- versus low-tax individuals captures changes in tax rates and not changes in the dividend allowance.

We therefore split the sample into two groups according to the prior year's tax status (*State Tax Level 1*). If the CHC owner was subject to the first level of central government tax in the prior year (*State Tax Level 1* = 1), we classify this individual as being in the *High Tax* group. Individuals who were subject only to municipality tax in the prior year (*State Tax*

Level 1 = 0) are classified as in the *Low Tax* group. Individuals below the central government tax threshold (state tax threshold) had no incentives for income shifting from the labor to the capital income tax base. Figure 4 plots the difference in *% Dividend Income* and in *% Earned Income* between these two groups over time.

[Insert Figure 4 about here]

Prior to the reform, the difference in the percentage of total gross income derived as dividend income (earned income) between the *High Tax* and *Low Tax* groups is positive (negative) and constant over time; that is, individuals subject to the central government tax received a larger (smaller) fraction of their income as dividends (earned income). This observation is in line with the tax optimization behavior of CHC owners. Around the 2006 tax reform, the difference in the percentage of total gross income derived from dividends increased from 1.2 percentage points prior to the reform to about 4.5 percentage points after the reform. That is, CHC owners with tax incentives increased their share of dividends to a larger extent than CHC owners who had not been subject to the state tax the prior year. At the same time, the *High Tax* group decreased earned income to a larger extent than the *Low Tax* group did.

We additionally test these graphical results in a DD regression framework. In Table 5, we rerun the regressions from Tables 3 and 4 but restrict the sample to CHC owners to examine cross-sectional variation in the response to the 2006 tax reform. We use the percentages of total gross income derived as earned income (*% Earned Income*) and as dividend income (*% Dividend Income*) as our dependent variables. Table 5 presents the estimates of the regression of *% Earned Income* and *% Dividend Income* on the interaction *Post*×*State Tax Level 1*. If our identifying assumptions hold, the post-reform income shifting effect should increase in the marginal tax rate. We thus additionally analyze the effect of the top tax (*State Tax Level 2*) on income shifting behavior. We add control variables and fixed

effects as before, in the fully interacted model. We now use robust standard error clustered at the individual level.

The negative coefficients of *Post*×*State Tax Level 1* in Columns 1 and 2 of Table 5 indicate that CHC owners subject to the state tax reduced earned income by 2.9 percentage points. If the CHC owner was subject to the top tax, % *Earned Income* decreased by an additional 1.9 percentage points. The results for % *Dividend Income* show that dividend income increased almost symmetrically. If a CHC owner was subject to the first level of the state tax, the increase was 3.2 percentage points higher than for a CHC owner who was not subject to the state tax. The positive and significant interaction of *Post*×*State Tax Level 2* indicates that the percentage of total gross income realized as dividends increased by an additional 1.5 percentage points after the reform if the CHC owner was subject to the top tax. In sum, this result indicates that differences in income shifting are related to tax incentives.

[Insert Table 5 about here]

Heterogeneity in access to income shifting

Next, we examine the role of access to income shifting. Alstadsæter and Jacob (2015) show that not every taxpayer with tax incentives and tax awareness actually participates in income shifting. An individual needs access to income shifting. Lack of access can explain why not all individuals participate in tax avoidance, even if they have tax incentives. Our definition of the control and treatment groups—CHC owners versus the owners of partnerships and the self-employed—follows the logic of this argument. Only the owner-managers of CHCs are able to relabel earned income as dividend income from the CHC. We next exploit differences in access to income shifting across CHC owners. In particular, we argue that income shifting from earned income to dividend income depends on ownership share. Jacob, Michaely, and Alstadsæter (2015) show that the tax sensitivity of dividend payout decreases in the number of firm owners. This decrease in tax sensitivity is due to

coordination problems and to heterogeneity in tax incentives among shareholders. An owner–manager who fully owns a company can freely decide on the optimal wage–dividend mix. If an owner–manager, however, owns only a minority share, there are potential conflicts among minority and majority shareholders about the form of payout that effectively reduce income shifting responses.

To test the prediction that access to income shifting affects the extent to which income is shifted across tax bases, we sort CHC owners according to their ownership share prior to the reform. The *High Share (Low Share)* group comprises CHC owner–managers who own more than 75% (25%) of the CHC. Following the logic of Figure 4, Figure 5 presents the differences in % *Earned Income* and % *Dividend Income* between the *High Share* and *Low Share* groups. Prior to the reform, the difference in % *Earned Income* and % *Dividend Income* is very close to zero; that is, income composition is similar across groups. After the reform, the ability to adjust income composition in accordance with the changed incentives is higher for the *High Share* group than for the *Low Share* group. More specifically, *High Share* CHC owners can increase (decrease) dividends (earned income) to a larger extent than *Low Share* CHC owners can.

[Insert Figure 5 about here]

Table 6 quantifies the differences in the ability to adjust to the changed incentives in a DD regression framework. The estimates are based on the sample of all CHC owners. We include an interaction between *Post*×*High Share* and *Post*×*Low Share*. As in Table 5, we use % *Earned Income* and % *Dividend Income* as dependent variables. The results in Columns 2 and 4 show that *relative* to the average CHC owner with an ownership share between 25% and 75%, *Low Share* CHC owners actually increased their share of earned income and decreased the share of dividend income. That is, owners with less control over the firm shifted less income than the average CHC owner did. In contrast, *High Share* CHC owners

could additionally reduce their share of total gross income derived from earned income by 0.3 percentage points. At the same time, they increased the share of dividend income by 1.1 percentage points. Note that these coefficient estimates measure the response relative to those of CHC owners with an ownership share between 25% and 75%.

[Insert Table 6 about here]

The results in Tables 5 and 6 indicate substantial heterogeneity in the income shifting response: CHC owners with incentives and the ability to shift income across tax bases utilized the income shifting opportunities created by the 2006 tax reform and CHC owners with low levels of shares in firms benefited less from these opportunities.

VI. Conclusion

We find robust evidence of income shifting in response to a dividend tax cut. The owner-managers of CHCs have increased dividends from CHCs while reducing wage income. The extent of income shifting increases with higher tax incentives and the ability to shift income. High-income owner-managers substitute highly taxed labor income with lower-taxed dividend income. Through this income shifting process, owner-managers can reduce their total tax payments and experience higher after-tax income growth vis-à-vis the owners of unincorporated businesses. However, there are frictions in the scope for income shifting. Owner-managers with low ownership share shift less income across bases due to potential conflicts with the majority shareholder(s) about the form of payout. In contrast, owner-managers with high ownership utilize income shifting opportunities more intensively.

The observed behavior has implications for fiscal policy, the design of tax systems, and the evaluation of tax reforms. Income shifting has several effects on the economy (Gordon and Slemrod 2000). Reclassifying income to a tax base that faces a lower tax increases the after-tax income of the taxpayer, even if the total gross income is unchanged.

This means that tax revenues decline. This increases after-tax income inequality in two dimensions: If mainly highly taxed individuals benefit from this kind of tax planning, vertical income inequality increases. In addition, horizontal inequality increases, since only informed individuals aware of the tax incentives and methods of tax planning participate in tax-minimizing activity (Alstadsæter and Jacob, 2015). All responses to taxes are potentially marginal efficiency losses (Saez, Slemrod, and Giertz, 2012) and income shifting thereby reduces the efficiency of the tax system. Income shifting across tax bases also leads to misleading statistics and can lead to inaccurate conclusions on the effectiveness of policy changes and tax stimuli packages. Myopic focus on a single tax base when evaluating a tax reform can lead to misleading conclusions: for instance, if labor supply elasticities are measured only by labor income without accounting for high-income individuals' potential to relabel wage income as capital income.

Further, there is a potential policy trade-off: A reduction in dividend taxes can lead to income shifting, with all the potential effects stated above. At the same time, a reduction in the dividend tax rate can improve the allocation of investments, since funds are shifted from cash-rich to cash-poor firms. Becker, Jacob, and Jacob (2013) show this allocation effect for listed firms in OECD countries and Alstadsæter, Jacob, and Michaely (2015) provide empirical evidence that this effect also holds for unlisted corporations. A dividend tax reduction shifts investments from cash-rich to cash-poor firms and thereby increases efficiency. Hence, policy makers face a trade-off between creating or increasing income shifting opportunities while raising efficiency through the improved allocation of investments.

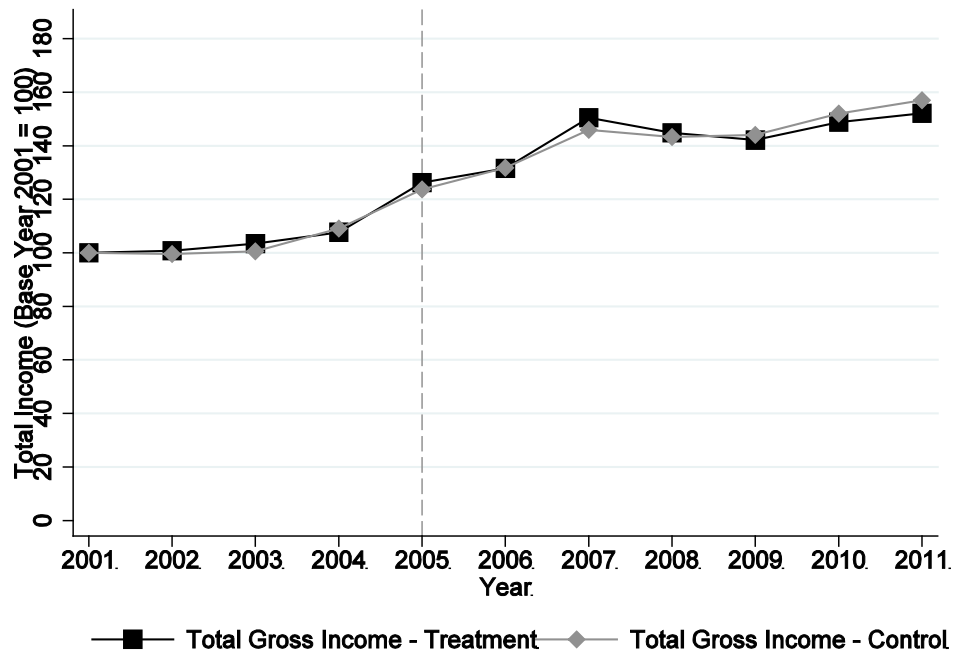
References

- Agell, J., Englund, P., and Södersten, J. (1996), Tax Reform of the Century – The Swedish Experiment, *National Tax Journal* 49, 643-664.
- Alstadsæter, A. and Jacob, M. (2012), *Income Shifting in Sweden – An Empirical Evaluation of the 3:12 Rules*, Report to the Expert Group on Public Economics (ESO) 2012:4, Swedish Ministry of Finance. Fritzes, Stockholm.
- Alstadsæter, A. and Jacob, M. (2013), The Effect of Awareness and Incentives on Tax Non-Compliance, FAcCT Center Working Paper No. 10/2012.
- Alstadsæter, A. and Jacob, M. (2015), Who Participates in Tax Avoidance?, FAcCT Center Working Paper No. 08/2012.
- Alstadsæter, A., Jacob, M., and Michaely, R. (2015), Do Dividend Taxes Affect Corporate Investment?, SSRN Working Paper.
- Alstadsæter, A., Jacob, M., and Vejsiu, A. (2014), *3:12 Corporations in Sweden – The Effects of the 2006 Tax Reform on Investments, Job Creation and Business Start-Ups*, Report to the Expert Group on Public Economics (ESO) 2014:2, Swedish Ministry of Finance. Fritzes, Stockholm.
- Apel, M. and Södersten, J. (1999), Personal Taxation and Investment Incentives in a Small Open Economy, *International Tax and Public Finance* 6, 79-88.
- Becker, B., Jacob, M., and Jacob, M. (2013), Payout Taxes and the Allocation of Investment, *Journal of Financial Economics* 107, 1-24.
- Edin, P.-O., Hansson, I., and Lodin, S.-O. (2005), Reformerad ägarbeskattning: effektivitet, prevention, legitimitet. Swedish Ministry of Finance.
- Feldstein, M.S. (1970), Corporate Taxation and Dividend Behaviour, *Review of Economic Studies* 37, 57-72.
- Fjærli, E. and Lund, D. (2001), The Choice between Owner's Wage and Dividends under the Dual Income Tax, *Finnish Economic Papers* 14, 104-119.
- Gordon, R.H. and Slemrod, J.B. (2000), Are “Real” Responses to Taxes Simply Income Shifting Between Corporate and Personal Tax Base?, in J. Slemrod (Ed.), *Does Atlas Shrug? The Economic Consequences of Taxing the Rich*. Cambridge: Harvard University Press, Russell Sage Foundation, Chap. 8.

- Government Bill 2005/06:40, Regeringens proposition 2005/06:40, Reformerade beskattningsregler för ägare i fåmansföretag, Swedish Ministry of Finance.
- Government Bill 2006/07:1. Regeringens proposition 2006/07:1, Budget Bill for 2007, Swedish Ministry of Finance.
- Harberger, A.C. (1962), The Incidence of the Corporation Income Tax, *Journal of Political Economy* 70, 215–240.
- Harberger, A.C. (1966), Efficiency Effects of Taxes on Income from Capital, in M. Krzyzaniak (Ed.), *Effects of Corporation Income Tax*. Wayne State University Press, Detroit.
- Heckman, J., Ichimura, H., Smith, J., and Todd, P. (1998), Characterizing Selection Bias Using Experimental Data, *Econometrica* 66, 1017-1098.
- Jacob, M., Michaely, R., and Alstadsæter, A. (2015), Taxation and Dividend Policy: The Muting Effect of Diverse Ownership Structure, SSRN Working Paper.
- Jacob, M. and Södersten, J. (2013), Mitigating Shareholder Taxes in Small Open Economies?, *Finnish Economic Papers* 26, 1-12.
- Lee, Y. and Gordon, R.H. (2005), Tax Structure and Economic Growth, *Journal of Public Economics* 89, 1027-1043.
- Lindhe, T. and Södersten, J. (2012), The Norwegian Shareholder Tax Reconsidered, *International Tax and Public Finance* 19, 424-441.
- Lindhe, T., Södersten, J., and Öberg, A. (2002), Economic Effects of Taxing Closed Corporations under a Dual Income Tax, *Ifo Studien* 48, 575-610.
- Lindhe, T., Södersten, J., and Öberg, A. (2004), Economic Effects of Taxing Different Organizational Forms under the Nordic Dual Income Tax, *International Tax and Public Finance* 11, 469-485.
- Moulton, B.R. (1990), An Illustration of a Pitfall in Estimating the Effects of Aggregate Variables on Micro Units, *Review of Economics and Statistics* 72, 334-338.
- Pirttilä, J. and Selin, H. (2011), Income Shifting Within a Dual Income Tax System: Evidence from the Finnish Tax Reform of 1993, *Scandinavian Journal of Economics* 113, 120-144.

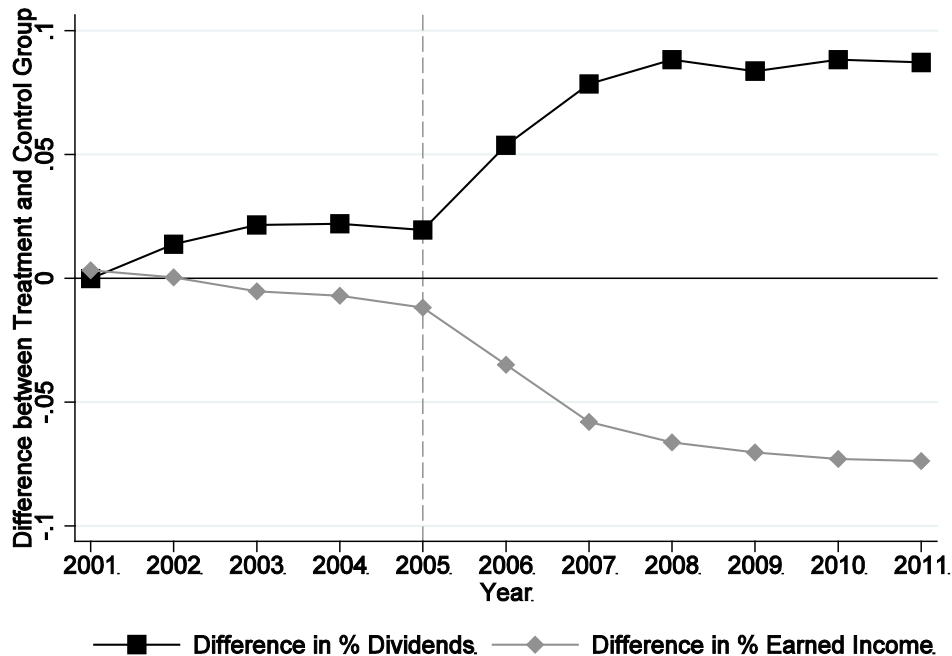
- Saez, E., Slemrod, J.B. and Giertz, S.H. (2012), The Elasticity of Taxable Income with Respect to Marginal Tax Rates: A Critical Review, *Journal of Economic Literature* 50, 3-50
- Slemrod, J.B. (1995), Income Creation or Income Shifting? Behavioral Responses to the Tax Reform Act of 1986, *American Economic Review* 85, 175-180.
- Sørensen, P.B. (1995), Changing Views of the Corporate Income Tax, *National Tax Journal* 48, 279-294.
- Sørensen, P.B. (2005), Dual Income Taxation: Why and How?, *FinanzArchiv/Public Finance Analysis* 61, 559-586.
- Stiglitz, J.E. (1985), The General Theory of Tax Avoidance, *National Tax Journal* 38, 325-338.

Figure 1: Total Gross Incomes of Treatment and Control Groups, 2001–2011



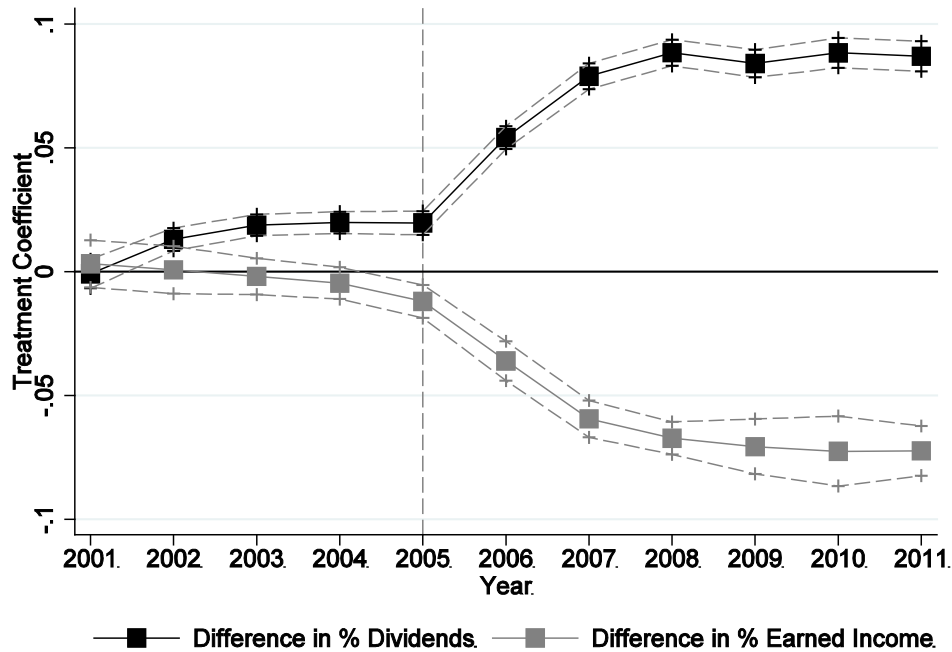
This figure shows the average total gross income of our treatment group, CHC owners (black line), and the total gross income of our control group, the owners of partnerships and the self-employed (gray line). Total gross income is in nominal terms and is scaled by total gross income for the year 2001. The vertical line depicts the last fiscal year before the tax reform and separates pre- and post-reform years.

Figure 2: Income Composition of the Treatment and Control Groups



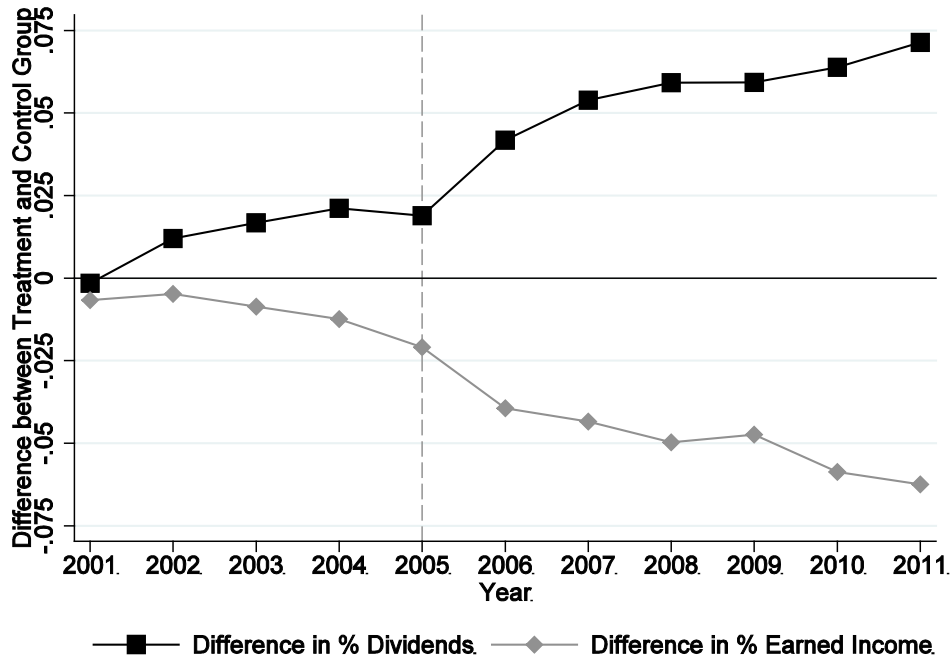
This figure presents the difference in the percentage of total gross income derived as dividend income (black line) and as earned income (gray line) between the treatment group—CHC owners—and our control group—the owners of partnerships and the self-employed. The difference is measured in percentage points. The vertical line depicts the last fiscal year before the tax reform and separates pre- and post-reform years.

Figure 3: Income Composition of Treatment and Control Groups, including covariates.



This figure presents the difference in the percentage of total gross income derived as dividend income (black line) and as earned income (gray line) between the treatment group—CHC owners—and our control group—the owners of partnerships and the self-employed. The difference is measured in percentage points. The annual differences are obtained from estimating our main DD model with all the fixed effects and control variables.

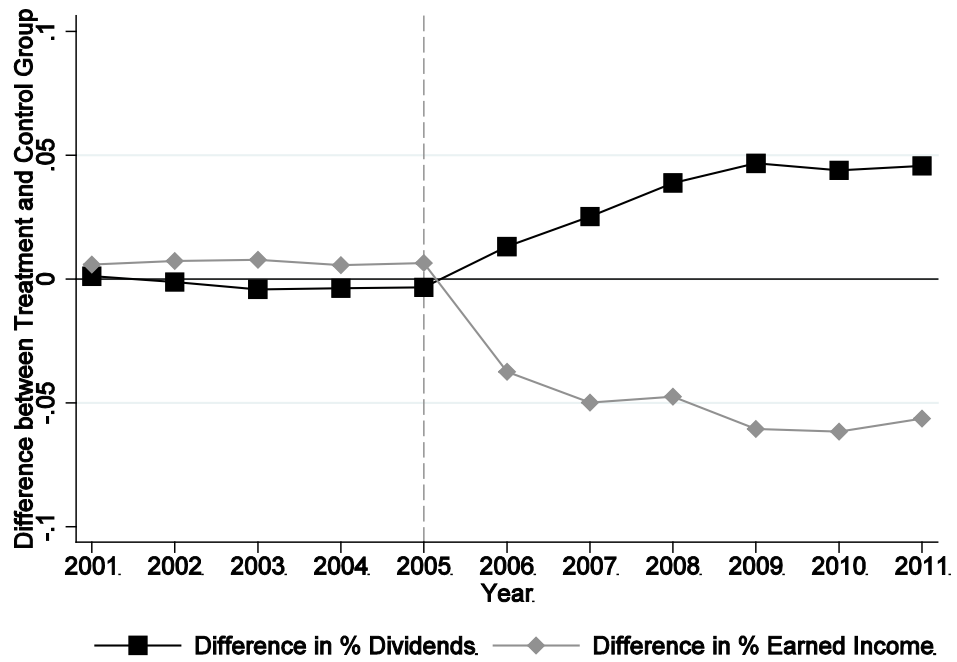
Figure 4: Tax Incentives and Income Shifting, Within-CHC Owner Analysis



This figure presents the difference in the percentage of total gross income derived as dividend income (black line) and as earned income (gray line) between CHC owners subject to the central government tax and CHC owners subject only to the municipality tax. The difference is measured in percentage

points. The tax status is defined in t-1. The vertical line depicts the last fiscal year before the tax reform and separates pre- and post-reform years.

Figure 5: Ownership Share and Income Shifting, Within-CHC Owner Analysis



This figure presents the difference in the percentage of total gross income derived as dividend income (black line) and as earned income (gray line) between CHC owners with an ownership share of 75% or more (*High Share*) and CHC owners with an ownership share of 25% or less (*Low Share*). The difference is measured in percentage points. The vertical line depicts the last fiscal year before the tax reform and separates pre- and post-reform years.

Table 1: Marginal Tax Rates in Sweden, 2000–2009

Earned Income						
Year	Municipality Tax	State Tax 1	Threshold State Tax 1 (SEK)	State Tax 2	Threshold State Tax 2 (SEK)	Combined Top Marginal Tax on Earned Income
2000	30.4	20	254,600	5	398,500	66.4
2001	30.5	20	271,500	5	411,100	66.5
2002	30.5	20	290,100	5	430,900	66.5
2003	31.2	20	301,000	5	447,200	67.0
2004	31.5	20	308,800	5	458,900	67.2
2005	31.6	20	313,000	5	465,200	67.2
2006	31.6	20	317,700	5	472,300	67.2
2007	31.6	20	328,600	5	488,600	67.2
2008	31.4	20	340,900	5	507,100	67.1
2009	31.5	20	380,200	5	538,800	66.9
2010	31.6	20	384,600	5	545,200	67.0
2011	31.6	20	395,600	5	560,900	67.0

Dividend Income CHC			
Year	Corporate Tax Rate	Dividend Tax Rate (Within Allowance)	Combined Dividend Tax Rate*
2000	28	30	49.6
2001	28	30	49.6
2002	28	30	49.6
2003	28	30	49.6
2004	28	30	49.6
2005	28	30	49.6
2006	28	20	42.4
2007	28	20	42.4
2008	28	20	42.4
2009	26.3	20	41.0
2010	26.3	20	41.0
2011	26.3	20	41.0

This table presents the marginal tax rates on labor and capital income from 2000 to 2011. Labor income is subject to a municipality tax, two levels of state tax, and social security contributions. Up to a certain threshold, these contributions generate benefits to the employee in the form of health insurance, unemployment benefits, and pension benefits. However, above this threshold, these contributions cease to generate additional benefits and become a pure tax. We include these contributions in the calculation of *Combined Top Marginal Tax on Earned Income*. See Alstadsæter and Jacob (2012), Appendix I, for an overview of these thresholds.

* The combined tax rate for dividends within the dividend allowance. Dividends exceeding the dividend allowance are first taxed at the corporate income tax rate and then taxed as earned income at the individual level.

Table 2: Descriptive Statistics of Dependent Variables and Tax Variables

Variable	Mean	Standard Deviation
<i><u>Dependent Variables</u></i>		
Total Gross Income	367,798	1,259,472
Earned Income	296,928	268,037
Dividends	25,269	243,317
% Earned Income	0.9581	0.2471
% Dividend Income	0.0402	0.1064
<i><u>Independent Variables</u></i>		
Treatment	0.4437	0.4968
Age	49.6724	10.7971
Married	0.6212	0.4851
Economics degree ^a	0.1192	0.3240
Law degree	0.0109	0.1039
IT degree	0.0085	0.0918
Medical degree	0.0206	0.1419
Public Employee	0.0092	0.0957
Consultant	0.0471	0.2119
Accountant	0.0182	0.1335
State Tax Level 1	0.3312	0.4707
State Tax Level 2	0.1117	0.3151

^aThis includes a degree in business subjects as well.

Table 3: DD Estimates

	Total Gross Income		% Earned Income		% Dividend Income	
	(1)	(2)	(3)	(4)	(5)	(6)
Post × Treatment	-0.008	-0.006	-0.058***	-0.060***	0.067***	0.068***
	(0.047)	(0.005)	(0.010)	(0.004)	(0.007)	(0.004)
Age		0.042***		-0.000		0.003***
		(0.001)		(0.000)		(0.001)
Married		0.004		0.013***		0.001
		(0.005)		(0.001)		(0.001)
Economics degree		0.133***		0.020***		-0.004***
		(0.017)		(0.004)		(0.001)
IT degree		0.074		0.014		-0.000
		(0.051)		(0.012)		(0.004)
Law degree		0.084***		0.027***		-0.009***
		(0.027)		(0.007)		(0.002)
Medical degree		0.279***		0.043***		-0.014***
		(0.052)		(0.012)		(0.004)
Public Employee		0.086***		0.008***		-0.001
		(0.006)		(0.003)		(0.002)
Consultant		-0.002		0.008***		-0.001
		(0.014)		(0.002)		(0.002)
Accountant		-0.004		0.010		-0.010
		(0.007)		(0.005)		(0.007)
Individual FE	No	Yes	No	Yes	No	Yes
Year FE	No	Yes	No	Yes	No	Yes
County FE	No	Yes	No	Yes	No	Yes
Observations	2,668,461	2,668,461	2,668,461	2,668,461	2,668,461	2,668,461
Individuals	232,228	232,228	232,228	232,228	232,228	232,228
R ²	0.133	0.694	0.023	0.478	0.113	0.451

This table presents regression results using the sample of CHC owners (treatment group) and owners of unlimited liability firms (control group). We use total gross income, the percentage of total gross income derived as earned income (*% Earned Income*), and the percentage of total gross income derived as dividend income (*% Dividend Income*) as dependent variables. Total gross income is defined in terms of its natural logarithm. Individuals with total income of zero are excluded from the analysis. Independent variables cover the interaction between *Post* and *Treatment* and individual characteristics (see Table A.I in the Appendix). We further include control variables, year fixed effects, county fixed effects, and individual fixed effects in Columns (2), (4), and (6). The main effects of *Post* and *Treatment* are included in Column (1), (3), and (5), but are not reported. Standard errors are clustered by group (CHCs, partnerships, self-employed) and time (12 years); in total there are 36 clusters. *** denotes significance at the 1% level.

Table 4: DD Estimates: Robustness Tests

	Total Gross Income		% Earned Income		% Dividend Income	
	(1)	(2)	(3)	(4)	(5)	(6)
Post × Treatment	-0.001	-0.008	-0.057***	-0.033***	0.066***	0.038***
	(0.006)	(0.010)	(0.004)	(0.007)	(0.004)	(0.006)
Baseline Controls	Yes	Yes	Yes	Yes	Yes	Yes
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes
County FE	No	Yes	No	Yes	No	Yes
Year FE	No	Yes	No	Yes	No	Yes
Trend*Treatment	No	Yes	No	Yes	No	Yes
Year*County FE	Yes	No	Yes	No	Yes	No
Year FE * Controls	Yes	No	Yes	No	Yes	No
Observations	2,668,461	2,668,461	2,668,461	2,668,461	2,668,461	2,668,461
Individuals	232,228	232,228	232,228	232,228	232,228	232,228
R ²	0.694	0.694	0.479	0.478	0.453	0.452

This table presents regression results using the sample of CHC owners (treatment group) and owners of unlimited liability firms (control group). We use total gross income, the percentage of total gross income derived as earned income (*% Earned Income*), and the percentage of total gross income derived as dividend income (*% Dividend Income*) as dependent variables. Total gross income is defined in terms of its natural logarithm. Individuals with total income of zero are excluded from the analysis. Independent variables cover the interaction between *Post* and *Treatment* and individual characteristics (see Table A.I in the Appendix). We further include control variables, county–year fixed effects, individual fixed effects, and the interactions of all the control variables with year fixed effects in Columns (1), (3), and (5). Columns (2), (4), and (6) replicate our main results from Table 3 but additionally include a trend variable as well as an interaction of the trend variable with the treatment dummy. Standard errors are clustered by group (CHCs, partnerships, self-employed) and time (12 years); in total there are 36 clusters. *** denotes significance at the 1% level.

Table 5: The Effect of Tax Incentives on Income Shifting, Within-CHC Owner Analysis

	% Earned Income		% Dividend Income	
	(1)	(2)	(3)	(4)
Post × State Tax	-0.027***	-0.029***	0.040***	0.032***
Level 1	(0.001)	(0.001)	(0.001)	(0.001)
Post × State Tax	-0.032***	-0.019***	0.023***	0.015***
Level 2	(0.001)	(0.001)	(0.001)	(0.001)
Controls	No	Yes	No	Yes
Individual FE	No	Yes	No	Yes
Year*County FE	No	Yes	No	Yes
Year FE * Controls	No	Yes	No	Yes
Observations	1,073,834	1,073,834	1,073,834	1,073,834
Individuals	123,208	123,208	123,208	123,208
R ²	0.049	0.532	0.101	0.468

This table replicates the results of Table 3 but for CHC owners only. We use the percentage of total gross income derived as earned income (*% Earned Income*) and the percentage of total gross income derived as dividend income (*% Dividend Income*) as dependent variables. Individuals with total income of zero are excluded from the analysis. We include the interaction between a dummy variable indicating if a CHC owner is subject to the first level of the state tax (*State Tax Level 1*) in the prior year. The variable *State Tax Level 2* is defined similarly for the second state tax threshold. The main effects of *Post* and *Treatment* are included in Columns (1) and (3), but no further control variables are included. We include additional control variables, county–year fixed effects, and the interactions of all the control variables with year fixed effects in Columns (2) and (4). Standard errors (in parentheses) are clustered at the individual level. *** denotes significance at the 1% level.

Table 6: Ownership Share and Income Shifting, Within-CHC Owner Analysis

	% Earned Income		% Dividend Income	
	(1)	(2)	(3)	(4)
Post × High Share	-0.004*** (0.001)	-0.003** (0.001)	0.011*** (0.001)	0.011*** (0.001)
Post × Low Share	0.010*** (0.001)	0.009*** (0.001)	-0.004*** (0.001)	-0.005*** (0.001)
Controls	No	Yes	No	Yes
Individual FE	No	Yes	No	Yes
Year*County FE	No	Yes	No	Yes
Year FE * Controls	No	Yes	No	Yes
Observations	1,036,606	1,036,606	1,036,606	1,036,606
Individuals	104,438	104,438	104,438	104,438
R ²	0.035	0.501	0.088	0.440

This table replicates the results of Table 3 but only for CHC owners. We use the percentage of total gross income derived as earned income (*% Earned Income*) and the percentage of total gross income derived as dividend income (*% Dividend Income*) as dependent variables. Individuals with total income of zero are excluded from the analysis. We include the interaction with a dummy variable indicating if a CHC owner owns at least 75% of his firm (*High Share*). The variable *Low Share* is a dummy indicating if a CHC owns less than 25%. Individuals in the 2nd and 3rd quartile constitute the comparison group. The main effects of *Post* and *High Share* and *Low Share*, respectively are included in Columns (1) and (3), but no further control variables are included. We include additional control variables, county–year fixed effects, and the interactions of all the control variables with year fixed effects in Columns (2) and (4). Standard errors (in parentheses) are clustered at the individual level. *** denotes significance at the 1% level.

Appendix

Table A.I: Variable Definitions

Variable	Description
Dependent Variables	
<i>Total Gross Income</i>	Total gross income (earned income + capital income), in SEK. Capital income comprises dividends, interests, and capital gains.
<i>Earned Income</i>	Earned income is the sum of labor income from all sources and business profits from unlimited liability firms, in SEK. Labor income comprises earnings (variable <i>CARB</i> in the data) and excludes taxable benefits such as unemployment insurance or pension income.
<i>Dividend Income</i>	Dividends from widely held corporations and CHCs, in SEK
<i>% Earned Income</i>	Ratio of earned income to total gross income
<i>% Dividend Income</i>	Ratio of dividend income to total gross income
Individual-Level Variables and Matching Covariates	
<i>Post</i>	Dummy variable that equals 1 if year after 2005
<i>Treatment</i>	Dummy variable that equals 1 if CHC owner over 2003–2007
<i>Age</i>	Age in years
<i>Female</i>	Dummy variable that equals 1 if female
<i>Married</i>	Dummy variable that equals 1 if married
<i>Economics degree</i>	Dummy variable that equals 1 if tertiary business/economics education
<i>IT degree</i>	Dummy variable that equals 1 if tertiary information technology degree
<i>Law degree</i>	Dummy variable that equals 1 if tertiary law degree
<i>Medical degree</i>	Dummy variable that equals 1 if tertiary medical degree
<i>Accountant</i>	Dummy variable that equals 1 if job occupation is an accounting firm
<i>Consultant</i>	Dummy variable that equals 1 if job occupation is a consulting firm
<i>Public Employee</i>	Dummy variable that equals 1 if employed by a government entity
<i>State Tax Level 1</i>	Dummy variable that equals 1 if individual is subject to first level of central government tax in the prior year.
<i>State Tax Level 2</i>	Dummy variable that equals 1 if individual is subject to top income tax rate in the prior year.

Web Appendix, Additional Figures and Tables

Dividend taxes and income shifting

Annette Alstadsæter¹ and Martin Jacob²

Figure A.I: Data Structure

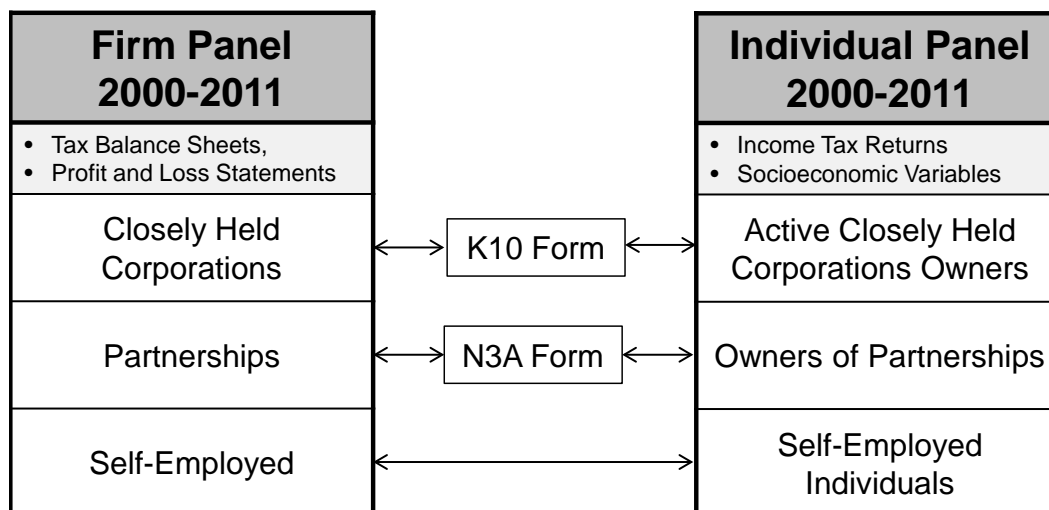


Table A.1: Matching Difference-in-differences Estimates

	Total Gross Income (1)	% Earned Income (2)	% Dividend Income (2)
Post × Treatment	0.020*** (0.002)	-0.063*** (0.001)	0.070*** (0.000)
Individual FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
County FE	Yes	Yes	Yes

	Total Gross Income (1)	% Earned Income (2)	% Dividend Income (3)
Post × Treatment	0.020*** (0.005)	-0.062*** (0.004)	0.068*** (0.004)
Individual FE	No	No	No
Year FE	No	No	No
County FE	No	No	No
Year* County FE	Yes	Yes	Yes
Year FE*Controls	Yes	Yes	Yes

This table presents regression results using a matched sample of CHC owners (treatment group) and owners of unlimited liability firms (control group). We use total gross income, the percentage of total gross income derived as earned income (*% Earned Income*), and the percentage of total gross income derived as dividend income (*% Dividend Income*) as dependent variables. Total gross income is defined in terms of its natural logarithm. Independent variables cover the interaction between *Post* and *Treatment* and individual characteristics (see Table A.I in the Appendix). We vary the inclusion of fixed effects across specifications. Standard errors (in parentheses) allow for heteroskedasticity and are clustered at the individual level. *** denotes significance at the 1% level.

¹ Corresponding author. Institute of Health and Society, University of Oslo, PO Box 1089 Blindern, NO-0317 Oslo, Norway; phone +47 23075303; fax + 47 22845091; e-mail annette.alstadsater@medisin.uio.no.

² WHU – Otto Beisheim School of Management; e-mail martin.jacob@whu.edu.